ENVIRONMENTAL
Fact Sheet

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

29 Hazen Drive, Concord, New Hampshire 03301 • (603) 271-3503 • www.des.nh.gov

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# Best Management Practices for Propane Tanks

**The Problem**

Recent changes in the National Fire Protection Association's (NFPA) LP-Gas Code will require an overfilling prevention device (OPD) to be placed on all propane tanks ranging in size from 4-40 lbs. As of April 1, 2002, only tanks with an OPD will be refilled. Due to these changes, all pre-OPD tanks, without an adapter, will be obsolete and destined for recycling or disposal.

**What is an OPD?**

According to the NFPA, an OPD is "a safety device that is designed to provide an automatic means to prevent the filling of a container in excess of the maximum permitted filling limit."

Propane boils at -44 degrees Fahrenheit and expands with heat. To avoid explosions resulting from expanding propane, tanks should not be filled to more than 80% of its capacity. OPDs will serve as backups to traditional filling procedures.

This change in design has caused a flood of propane tanks at transfer stations, resulting in increased recycling costs. The result is that these propane cylinders are being stockpiled in large quantities at transfer stations or being disposed of improperly.

**Facts about Propane**

- Propane is colorless and artificially odorized.
- Propane is stored as a liquid and expands when heated.
- Contact with liquid propane causes freeze burns and damage to the eyes.
- Liquid propane vaporizes instantly when released from its container.
- Released propane is extremely flammable and explosive.
- Propane is heavier than air so it will move into low-lying areas.
- High concentrations of propane can cause unconsciousness.
- Propane + Oxygen = Combustion

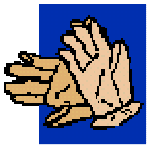
**Type of Tanks**
Propane tanks can be separated into two categories: *refillable* and *single-use*. Both types of tanks, when discarded, can contain enough fuel to explode.

*Refillable tanks*, which are typically used to hold fuel for gas grills, will hold 20 pounds of liquid propane and can be refilled many times. The average propane grill will use two tanks per year. In 1999, an estimated 109,000 refillable propane tanks were purchased in New Hampshire, an amount of steel equivalent to 650 compact cars.

*Single-use* tanks provide fuel to blowtorches and camp stoves. These tanks are found in a variety sizes, but will hold only one pound of liquid propane. An estimated 130,000 single-use tanks are generated in New Hampshire annually.

**Collection, Storage and Transfer Facilities**
Prior to collection, operators should check the facility's solid waste permit conditions to determine if propane tanks are listed as a prohibited waste, as well as contacting the local fire chief to inquire about local ordinances.

*General Handling Requirements*
Staff should be informed as to the proper handling and potential dangers associated with propane tanks. When collecting tanks, consider the following:



- Condition of the tank
- Whether the tank was generated from a household or commercial entity
- Contents of the tank
- Type of valve (a valve can show the type of gas in a tank).

Encourage homeowners to use up all the propane before bringing tanks to the transfer station. To reduce fire and safety concerns, accept only empty tanks. Be sure the valve is closed when collecting tanks.

*Storage of Propane Tanks* [NH State Fire Code (Saf-C 6008.01)]
Propane tanks must be stored in:

- an upright position to reduce the possible release of liquid propane.
- a location that limits exposure to extreme temperature change, physical damage or tampering.

When storing tanks outside, tanks must be kept:

- 20 feet from a doorway or opening to a building frequented by the public, automotive stations, ignition sources, property lines, sidewalks or important buildings.
- in a locked metal locker, fenced in enclosure or rack to prevent theft and accidents causing a tank to be punctured.

Cylinder valves should be protected with a screw-on-type cap or collar securely in place regardless of whether a tank is full, partially full or empty. Sites storing more than 10 tons should contact NH Air Resources Division at the NH Department of Environmental Services for specifics on permit requirements (10 tons of propane translates in 1,000 tanks).

*Fire Protection*

Sites that are storing propane tanks must have at least one approved portable fire extinguisher with a minimum capacity of 18 lbs dry chemical with a B:C rating. [NH State Fire Code (Saf-C 6008.01)]

*Transporting Propane Tanks*

Tanks that are collected and stored will need to be transported to a recycling or disposal facility. Either the municipality or a contractor can do this. Municipalities can self-transport propane tanks within the state without placarding or training. Private contractors must comply with 49 CFR, which requires: placarding, labeling, training, manifesting, etc. If using a private contractor to haul unwanted propane tanks, be sure that they are complying with 49 CFR.

**Options**

Transfer stations and storage sites have a number of options available for handling propane tanks. Facilities can contract a company to come in and vent, purge and devalve all of the tanks, typically at another facility. With proper training, facilities can handle propane tanks on site (see contact numbers below).

*Venting* [NH State Fire Code (Saf-C 6008.01)]

Venting is a process whereby the valve is opened and the propane gas is released.

- Venting shall be performed under conditions that will result in rapid dispersion. Consideration shall be given to such factors as distance, terrain, wind direction and velocity and the use of a stack so that a flammable mixture will not reach an ignition source.
- When venting, it is important to consider ignition sources, such as automobiles, burn piles and cigarettes.
- Venting in colder months may cause a build up of condensation in the valve and slow or halt propane from evacuating.
- Propane is heavier than air and will collect in low areas. Venting should be done in high spots.

CAUTION: Tanks vented quickly may appear to be empty, when in fact, the tank still contains residual propane. (NFPA 58 and NH State Fire Code (Saf-C 6008.01))

*Devalving*

Devalving is a process by which the valve is removed from the tank. This method of propane tank management is **extremely dangerous** and needs to be done under specific conditions.

*Only trained personnel using non-static equipment should remove propane tank valves.* Tanks may contain indeterminable amounts of propane, and improper removal of valves could result in personal injury or death.

*Return, Refill and Reuse*

Transfer stations and recycling centers should encourage homeowners to participate in tank exchange programs and to bring old tanks back to distributors or local heating supply companies. Due to the amount of tanks being exchanged and a slump in the scrap metal market, both exchange programs and local heating supply companies will charge for this service. However, the cost ensures that the tanks are handled properly.

Many propane distributors or retail distributors will allow tanks to be refilled or offer a tank exchange program. This method reduces the amount of steel required to produce the tanks and is the preferred method of tank management. Homeowners should be encouraged to participate in propane tank exchange programs.

In 1999, 25% of tanks manufactured were reused in exchange programs. Tanks may be reused by refilling at propane dealers or by having an adapter or new valve installed by a trained propane worker.

**Additional Information**

For additional information about propane tank management in your area, please contact your local fire chief. Please address other concerns to:

NH Department of Environmental Services: 271-2900
NH Department of Labor, Health and Safety: 271-6850 or LAB 1400
NH Department of Safety (Fire Standards): 271-3294 or NH State Fire Code, Saf-C 6008.01